

## **Evaluating the Usability of a Positive Behavior Reward App for Faculty and Students at a Local Elementary and Intermediate School**

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**Abstract:** A public Hawaii elementary and intermediate school has recently introduced a positive behavior support system to try and combat high rates of both absent students and behavioral occurrences. This system centers around teaching focused school-appropriate behaviors and explicitly rewarding those behaviors with a paper dollar. However, students have been using these paper dollars inappropriately by stealing, bullying, and buying black market items from each other. To address this problem, the purpose of this usability study was to develop and evaluate the ease of use and preference of a smartphone application that rewards the student's points in which they can then use on physical items and school-wide events. The app was developed using the platform Bubble.is, and mobile interface design principals drove the development process. Three rounds of usability testing, for both students and teachers, were conducted. Testing sessions included pre-surveys that aided in determining participant eligibility. During testing, a usability protocol script was used to assist in the measurement of time on task and number of clicks per task. At the end of each session, participants completed post attitudinal surveys and revisions were made between each iteration of testing and relied on participant feedback. Feedback from participants indicated that they preferred the smartphone application to the physical dollar system due to its ease of awarding points, safety, and organization. All participants, students and teachers, strongly agreed that this app should replace the current physical dollar system.

### **Introduction**

There are many problems facing today's low-income schools that impede student achievement. Behavior issues such as bullying, insubordination, fighting, and vandalism, all lead to less time spent on what matters in the schools: learning. For a local elementary and intermediate school, the time has been expended in the last few years researching ways to decrease the number of behavior incidents around campus and increase the time students spend learning. Through their research, the school has decided to implement a school-wide positive behavior intervention system (SWPBIS), which stems from a well-researched method of behavior management called "positive behavior system" or PBS. The method is "the application of evidence-based strategies and systems to assist schools to increase academic performance, increase safety, decrease problem behavior, and establish a positive school culture" (Boon, 2010). The reason for the call to action by the local elementary and intermediate school comes from recent school-wide behavior data from 2014-2015 school year. Data showed that there were 541 discipline referrals

written with 84 of those resulting in suspensions. (“School Status and Improvement Report,” 2016). The concern with these referrals and subsequently the suspensions is the amount of academic time lost for both students and teachers. “Because disruptive behavior typically results in lost instructional time and, thus, compromised learning, interventions that recover and maximize instructional time by keeping students in class should produce improvements in academic areas” (Lessen et al. 2006).

With this research in mind, the school created their SWPBIS that encompasses teaching favorable school behavior and rewarding students for their actions with a paper “buck.” Where the system has had a good start, resulting in fewer referrals and higher attendance rates, the time and energy needed to print, cut and pass out the paper money is not sustainable. On top of the constraints with resources, the students have also been caught stealing, bullying and using their bucks to purchase “black market” items from each other such as contraband and snacks. With that, the purpose of this usability study is to create and evaluate the ease of use of a smartphone application for faculty that awards and keeps track of student points for the school-wide positive behavior system.

## Literature Review

A significant aspect of implementing a school-wide behavior system is ensuring the validity of the chosen program. Research by Horner et al. (2010) indicates that SWPBIS combines decades of research over multiple disciplines including education, mental health, and behavior sciences. This research also leads the way to the idea that primary preventions (i.e. rewards for appropriate behavior) link to “improved organizational health.” And though there has been some debate on whether extrinsic rewards have a positive or negative effect on intrinsic motivation, research has indeed shown a positive correlation to intrinsic motivation in students if they are taught the social skill as part of the reward (Sugai et al., 2012). This detail of teaching social skills in the context of the extrinsic reward includes the deliberate and precise verbal affirmation from the staff when delivering a reward. In addition, “behaviorists are correct in claiming that rewards can be used effectively in classrooms” (Brophy, 2010).

At the heart of the SWPBIS is a three-tier system that incorporates varying degrees of support for both teacher and student. The first tier includes teaching faculty and staff to be proactive in rewarding and acknowledging good behaviors instead of being reactive in behavior management. In a study by Nocera et al. (2014), if a student is taught the correct behavior and then rewards explicitly for that particular behavior, teachers saw a positive correlation between the rewards and the increase in good behaviors. This cycle of teaching, reviewing and acknowledging correct behaviors does not impede on their intrinsic motivation but instead enhances the likelihood of the success of a Tier 1 intervention per the SWPBIS program.

With the creation of a SWPBIS, it is important to consider the efficiency of the planned interventions. “If teachers consider the program to be onerous and to provide little benefit, they will not use it” (Tettegah et al., 2016). With this research in mind, I decided to create a smartphone application that would keep track of tier one intervention points for both faculty and student. The application would be simple enough as not to deter usage from the faculty, but pointed enough as to give explicit feedback to the students. The inspiration for the smartphone

application came from an already existing positive behavior tool called Class Dojo. This is a classroom based PBIS program that gives students points for positive behaviors and takes away points for negative ones. These point transactions are cataloged with specific feedback for student, parents, and teacher to be able to reference. The Class Dojo program showed a positive correlation between rewarding students for positive classroom behaviors and the decrease in negative classroom behaviors (Maclean-Blevins et al., 2013). Where most research is incorporating Class Dojo in the classroom setting, I was hoping to replicate its' positive impacts schoolwide (Gann, 2105).

When creating the smartphone application, I incorporated various design guidelines used to enhance the user experience. Some of the characteristics that were focused on stemmed from Shneiderman's Golden Rules of Interface Design (Ayob et al., 2009) to include; closure dialogue, consistency, easy reversals, and user personalization. Since the primary users of the app would be students under the age of 14, it was also important to create a design of "top-down" interactions. The mobile experience design focused on a small amount of text per screen and the presentation of information in layers "to reduce distraction, interactions, and potential information overload" (Gong & Tarasewich, 2004). Popups, notification, and confirmations were used to ease the access of content messages to the users. Functionality was also a primary focus, and a point was made to "prioritize and present core features from other channels that have especial relevance in a mobile environment" (Cerejo, 2012).

In addition to the user experience considerations, the audience's age was considered, especially in the context of the usability testing. Students, ranging from ages 11-14, are the key student demographics in this usability study and per Druin (2002), "children are 'incredibly honest and at times harsh in their assessment of technology.'" It will also be important to note several aspects of the usability itself such as length of time of the study session, questions asked, and the type of feedback given when a student cannot complete a task (Markopoulos et al., 2003). With these alterations in mind, the usability scripts as presented by Krug (2010) were modified and thus could locate usability problems and tweak the application to address usability issues.

## **Project Development**

Before conducting the usability study, I created smartphone application prototype. First, a flowchart was created using a paper/pencil method as to ensure the inclusion of all features necessary in creating the application (Figure 1). Some key features that were non-negotiables include user login capabilities, point awarding component, student account information, a school store and a calendar of upcoming events.

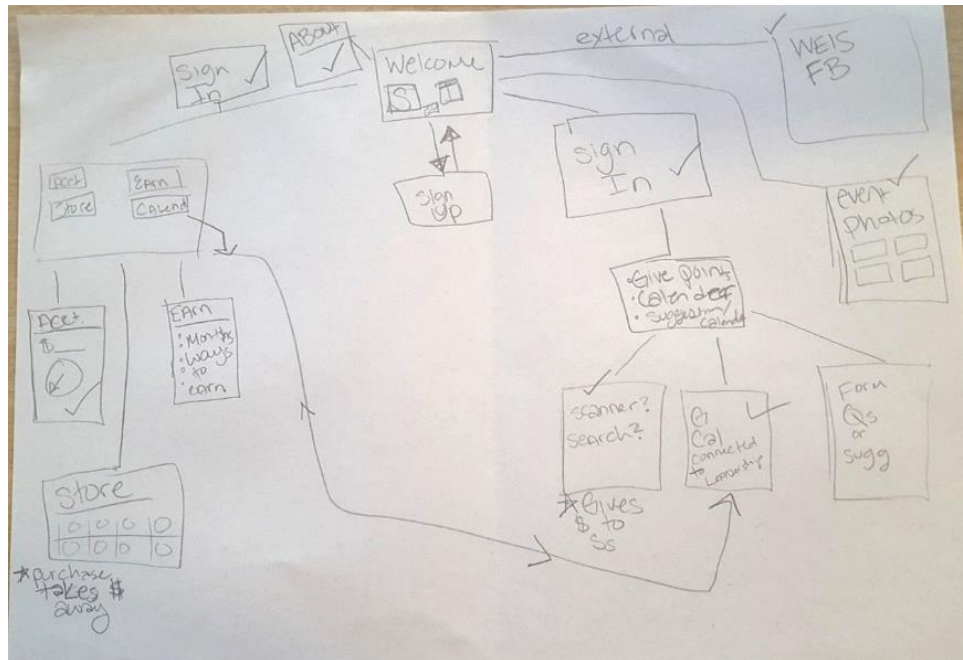


Figure 1: Flowchart of Smartphone Application

Once I created the flowchart, I conducted research to find the most appropriate application creator for my project. Through trial-and-error and a failed attempt using a different program, I decided on Bubble.is which is a point and click programming tool that creates a mobile application without coding. There were several reasons for this decision. First, to create the application with the inclusion of the necessary features is free. Second, it has the capability to sign up users and stores their information in an easily manipulated database. And finally, where the learning curve was steep, once I learned the programming language it was intuitive in its design and easy to use.

After I decided on the application design program, I could complete the design process and build a functioning prototype. All of the design features are customizable within the creation program. I decided to incorporate the school's existing colors and created a color scheme with the help from Adobe Color CC ([color.adobe.com](http://color.adobe.com)). The color scheme was used to design and modify buttons, texts, headers, footers and search bars within the Bubble.is program.

In the first iteration of the prototype, I created first the home screen that gave users the ability to choose whether to login as a student, teacher or sign up for the first time (Figure 2). Next, I created the faculty/teacher side of the application that includes a teacher login portal, student search feature to award points and a calendar of events that integrates with the school's current Google Calendar. For the student side of the application, I designed a page that will show a graphic representation of the number of points they have in their account as well as a place for them to "buy" items in the school store (Figure 3). Additional features added to the application include pictures of past events, a link to the school's Facebook page, and information about the purpose of the application itself.

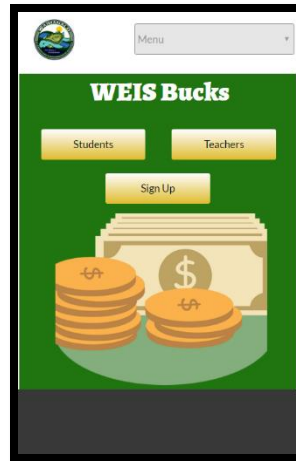


Figure 2: First iteration splash page that includes user type and a sign up

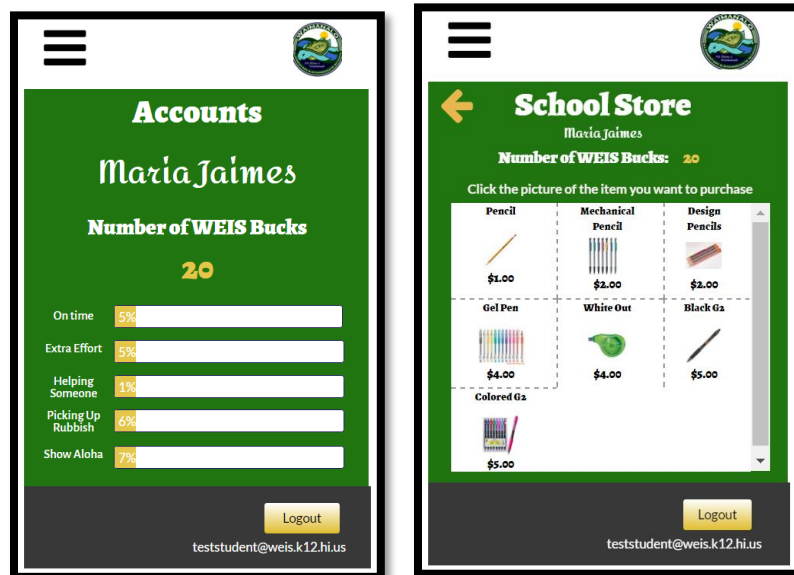


Figure 3: First iteration student features

However, throughout the first two rounds of testing, it was mentioned that the interface looked "bland" and still "in the developmental stage." With these comments in mind, I changed aesthetics to include more modern design elements. These changes included color gradient on the background, a flat color on the buttons, larger buttons, and the deletion of the visible navigation on the footer (Figure 4). In addition, some tasks were found to be too lengthy, leading to too many clicks per task. With Shneiderman's Golden Rules of Interface Design in mind, an increase in shortcuts was made to increase the speed of usability. Changes in this regard included modified workflows to decrease clicks, a user information button, and changing some page navigations to popups. One of the most obvious modifications made was the change in workflow that automatically sends users to their perspective homepages based on their user profiles instead of forcing them to an account choice page.



Figure 4: Final iteration with design changes

## Methodology

### Research Questions

In this usability study, the focus was to determine the likelihood of the school using the smartphone app over the current physical money system. With that in mind the research questions were: First, how easy or difficult is it for students/faculty to navigate the smartphone application? Second, what is the perception of the smartphone application by faculty/student as compared to the current physical PBIS system?

### Participants

The school targeted for this study is a local public school that teaches grade Pre-Kindergarten through the 8th grade. On the island of O`ahu, this school is Title 1, meaning it serves a low-income population. This population of students includes 61% Native Hawaiian with special areas of population to include 13% Special Education and 4% English Language Learners. The staff of the school includes administration, teachers, counselors, educational assistants, and office personnel. When given a survey about their technology usage, 17% of the school's teachers described themselves as uncomfortable around new technology, while 61% described themselves as proficient or above.

For testing the app, I recruited students who had experience with smartphone applications as well as knowledge of the current PBIS system at the school. (See Appendix A, B, and C for recruitment materials.) Similarly, the faculty was recruited with the same criteria in addition to whether they own or use a smartphone on their own time. This approach was necessary, as I did not want the user to be distracted from the application by their lack of abilities using a smartphone in general.

Once participants were selected, the final components before beginning the usability study were the collection of signed consent and assent forms from faculty members, students and parents of students. (See Appendix D, E, and F for forms.)

### Instruments

The data collected came from various sources throughout this usability study. For recruitment purposes, Google Forms were created to manage pre-data on the participants; whether they have experience with smartphones, their application usage and knowledge of the school's current PBIS system.

Throughout the usability study, I collected data using a modified script (Appendices G and H) from Rocket Surgery Made Easy (Krug, 2010). With this usability protocol, I measured the number of times the user clicks around the application until the completion of the task or the user gave up. Moreover, I measured the amount of time on a task by using a stopwatch throughout the study. These measurements were documented using an observation sheet (Figure 5). Both sets of data were averaged together to give a holistic look at the tasks throughout the usability study.

Testing Round: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Task #	Time on Task	Number of Clicks
Comments		

Figure 5: Usability Study Observation Sheet

Subsequently, at the completion of the usability test, users were then asked to participate in an attitudinal survey that was created using Google Forms. This survey asked users of their perception of the application's speed, ease of use and their preference compared to the current physical dollar system. Where both student and faculty surveys ask the same types of questions, they are written at different reading levels as to get the best information from the students.

### Procedures

In this usability study, I tested both students and faculty. With students, I conducted research for the following; the ease at which a student can access their account, the ease at which a student can purchase an item from the school store, and the ease in which a student can navigate the application. With faculty, I conducted research on the following; the ease at which a person can

locate a student, the ease at which an individual may input a point value, and the ease at which a person can navigate the app. There were three rounds of testing that included three participants in each round, with some student rounds including dyads. Participants of the study included students as well as school administration, counselors and teachers. Testing was done in-person, and a laptop was provided to the subjects with a version of the app loaded. I recorded the session and participants were asked to talk aloud as they completed tasks. During this time, participants provided feedback and thoughts while they were trying to navigate through the smartphone app. In addition to time on task and number of clicks for task, I gave participants a survey that included a Likert scale to measure ease of use. Furthermore, I analyzed the mean of the amount of time on time and number of clicks for tasks. The quantitative data from the surveys were analyzed through a word cloud to measure the frequency of word choice.

## Results

### *Student Testing*

Round 1 of student testing determined that even though the student portion of the app was more fully developed, it still needed some improvements. During Round 1, students opted to test in dyads and in doing so were more comfortable expressing their feelings towards the app. Where it was met with overall positivity, the usability test did show areas of weakness. The times on task were overall higher during the first round of testing (Figure 6) which lead to a change in workflow of the app. To combat these issues of higher times on task, I eliminated the account choice page and directed users to the correct homepage based on their account type upon sign in.

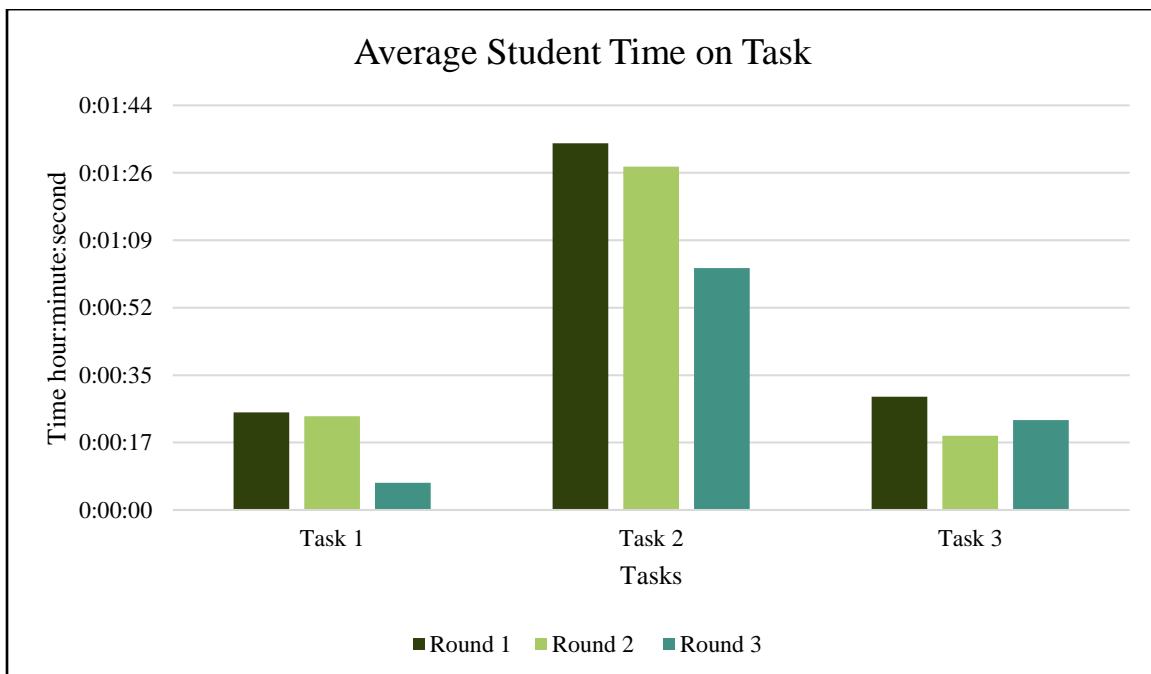


Figure 6: Averages of student times on task per round

For Round 2 of testing, students were tested individually and where times on tasks were lowered from the previous round, there were still issues with the ease of use of the app. Throughout this round of testing common usability issues were that of broken links, confusion over store pricing,



and lack of navigation reversals. These ease of use issues that were evident in both Round 1 and Round 2 of testing became evident through the post-attitudinal surveys (Figures 7 and 8). Even though the attitudes towards the app's ease of use was still wholly positive, those 4 students, who were the same for both questions, showed that the app was not perfect and still had room for improvement.

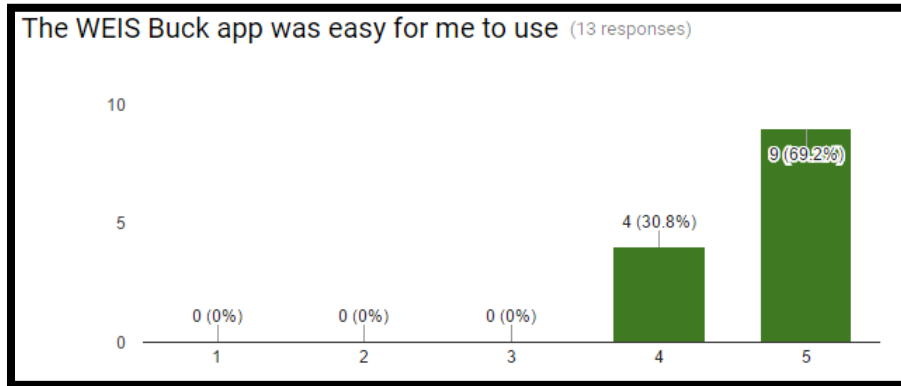


Figure 7: Student post-attitudinal ease of use question

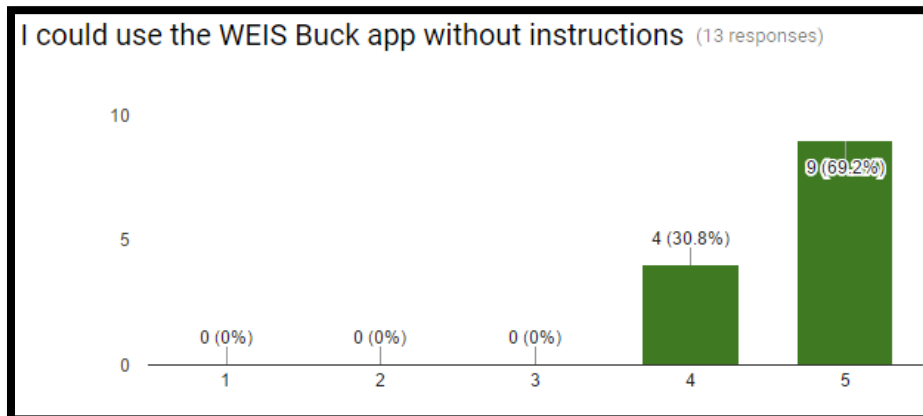


Figure 8: Student post-attitudinal ease of use question responses

Round 3 of testing included the new design interface, and that coupled with the modifications made to the usability errors from previous rounds contributed to the decrease of time it took participants to complete each task. Also, all three participants in Round 3 described the app as extremely easy to use with all 5s on the post-attitudinal survey.

Through the entirety of student testing, when asked if the students preferred the app tested to the physically dollar system currently in place, 100% of participants agreed that the app would be a better alternative. Students seemed excited about the idea of using an app to monitor their progress and gave comments like “it is easier to keep track of our bucks” and “we wouldn’t have to worry about anyone stealing them or losing them.” Part of the post-attitudinal survey asked students for written feedback which was then turned into a word cloud to be examined (Figure 9):



Figure 9: Student post-attitudinal survey word cloud

To examine the word cloud more effectively, pronouns, prepositions and conjunctions were removed. The remaining words were then analyzed for the highest occurring words. This included; easy, app, use, steal and lose. The words steal and lose were in regards to other students not being able to steal their bucks and they themselves not being able to lose them. Overall, however, the usability testing showed that the ease of use of the app was indeed better than the current physical dollar system.

*Faculty Testing*

The first round of testing consisted of three participants, all intermediate teachers working within the school. Once testing began, it was evident right away that the teacher portion of the app was not as developed as the student side. One example of the lack of user interactions was the numerous broken links that were pointed out throughout the round of testing. The suggestions button and information button, both located on the teacher splash page, were not operational at the time of testing. Also, the teacher features of the app were not present within the pop out menu, which lead to confusion among participants and higher times on task (Figure 10).

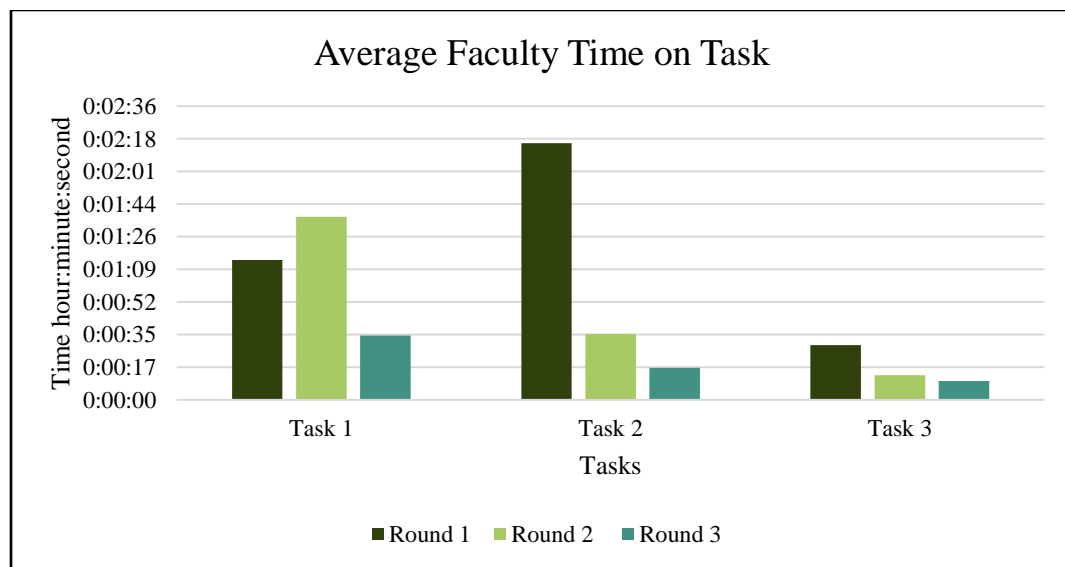


Figure 10: Averages of faculty times on task per round

Another key feature that was not present during the first round of faculty testing was the presence of a confirmation box for the award of student points. After the teachers hit the “submit” button they were then navigated back to the original award page. This led to one of the teachers attempting to award the student again. The confirmation feature was added for the second round of testing (Figure 11).

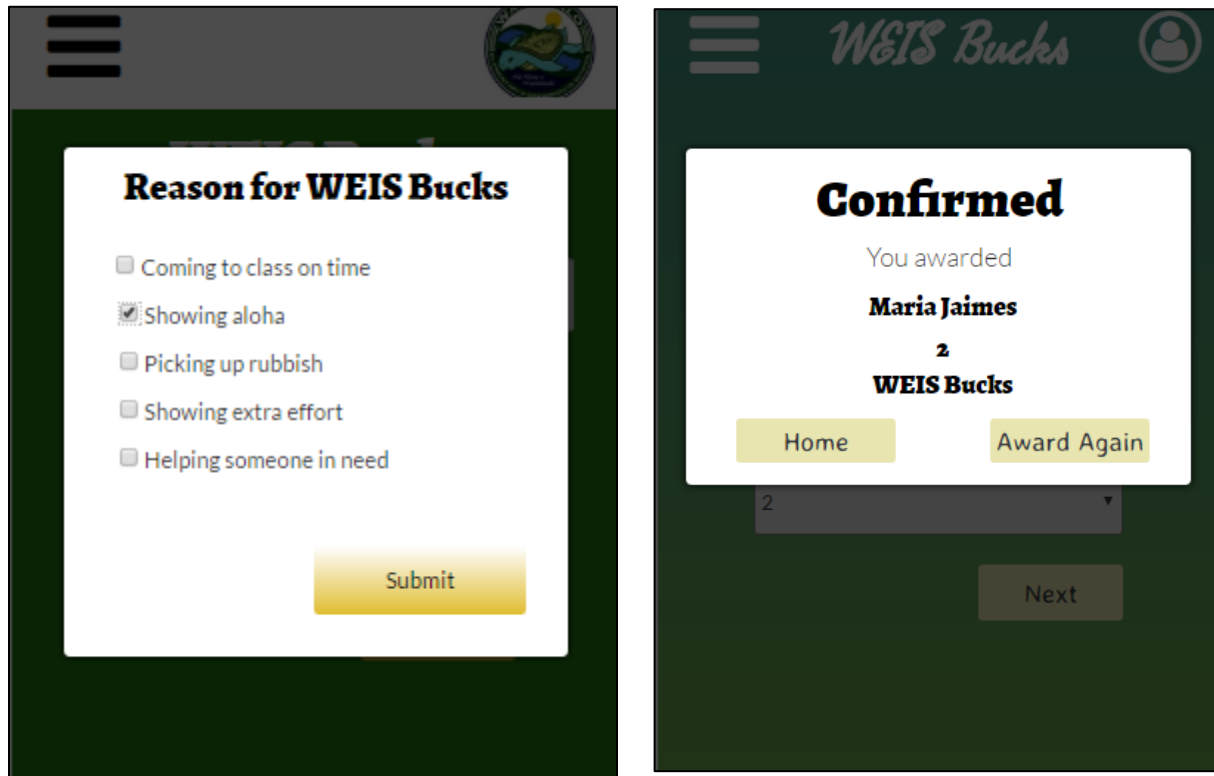


Figure 11: First round lacking confirmation pop up and the later added confirmation pop up

With the correction of the multiple usability errors discovered during Round 1 of testing, Round 2 was a wholly more positive experience. Round 2 of testing included two teachers and one counselor, all of which contributed further suggestions to improve the ease of use of the app. The only critical error that was discovered during this round of testing was the lack of clarification on the input feature for the student’s name. In the first two rounds of testing the input area placeholder says “start typing”. Though it was not an issue in the first round of testing, the second round had all three participants trying to type out the whole testing scenario as opposed to just writing the student’s name being awarded. This error led to an almost minute increase of time on task. Where not part of the usability protocol, it was also brought forth that the navigation workflow from the login and signup page had too many steps and needed to be simplified. It was improved for Round 3 by creating a workflow that sent the users directly to their appropriate splash page (teacher and student) based on the type of account they signed up for originally. This improvement reduced the number of clicks to logon from three to one, as well as the number of clicks in which to sign up for the app.

For Round 3 of testing, the new user interface coupled with the modifications made to the usability errors from the previous rounds proved to increase the usability of the app. This

increase in usability was evident in the sharp decrease in the amount of time participants spent on tasks. These improvements to the app lead to an overall higher score on the post-attitudinal survey with a perfect score on the Likert scale questions and no negative aspects written.

### **Discussion and Conclusion**

This usability study determined that the buck smartphone app was perceived by all participants to be better than the current physical dollar system. Participants, both student, and faculty found the app to be a safer alternative than the current system and would, in turn, lower the number of theft and bullying incidents that are happening currently. It was also perceived that using the app would be easier for all parties involved. If the school used the app, there would be less time needed to create and distribute money, as well as less energy required to spend the money made. Having a secure place to keep and spend student's earned points was a desirable feature mentioned by many if not all the participants.

This study also found that with each iteration of the app, the ease of use increased due to the feedback of participants. The "do-it-yourself" usability testing gave insights that enabled the improvement of the app (Krug, 2010). With the help of the usability testing, protocol improvements were made to the app with each iteration. Improvements, including locating and fixing broken links, streamlining workflows, and the addition of feedback, all aided in the overall usability of the app for both students and faculty.

Beyond the usability testing of the app, this study determined that the app prototype would indeed be a viable option for the local elementary and intermediate school to continue their school-wide positive behavior intervention system. The positive outlook on the app is due to it being free for the school to use as well as the need for a safer and easier alternative to the current system. The app also has potential to have a companion website, which would cut back on the access issues that could arise by having only a smartphone app available. Where this app does not solve all of the problems associated with a title one school, it does begin to address some of the everyday behavioral issues.

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## Appendix A

## Instrumentation: Recruitment Email

**SUBJECT LINE:** Mrs. Callahan invites you to participate in a smartphone app study

Hello,

My name this is Mrs. Callahan, and I'm to run a usability study for my Master's project with the University of Hawaii at Manoa. In an effort to improve a smartphone application I made, I'm looking for people who may be interested in trying out the app related to WEIS Bucks and giving feedback after using it.

**What will I be doing in a usability study?**

You will be asked to do several short tasks using a smartphone app. You will also be asked questions about your experience and perceptions of the app.

**How long is a session?** 15 minutes.

**When and where?**

The study will be held January 9-13 from 2:30-3:00 PM. You will be asked to participate in person and we can meet anywhere on campus you prefer.

**Interested in participating?**

Please reply to this email. I'll get back to you soon to ask you some questions to help us determine if you qualify for the study.

If you have any questions, please contact me at [ashleya6@hawaii.edu](mailto:ashleya6@hawaii.edu).

Thank you for interest,

Ashley Callahan  
Graduate Student, University of Hawaii at Manoa

Appendix B

Instrumentation: Pre-Study Recruitment Survey: Student

**Smartphone App & PBIS**

Do you own a smartphone?

Yes

No

How comfortable are you with a smartphone?

1 2 3 4 5

Not at all      Very much

How comfortable are you with navigating smartphone applications (apps)?

1 2 3 4 5

Not at all      Very much

Do you currently receive WEIS Bucks?

Yes

No

I don't know

Why does the school hand out WEIS Bucks?

Your answer \_\_\_\_\_

**SUBMIT**

Never submit passwords through Google Forms.



Appendix C

Instrumentation: Pre-Study Recruitment Survey: Faculty

Would you be interested in participating?

- Yes
- No

Do you own a smartphone?

- Yes
- No

What type of phone do you have?

- iPhone
- Android
- Blackberry
- Other :

What type of apps have you used in the last 30-days on your smartphone?

Check all that apply

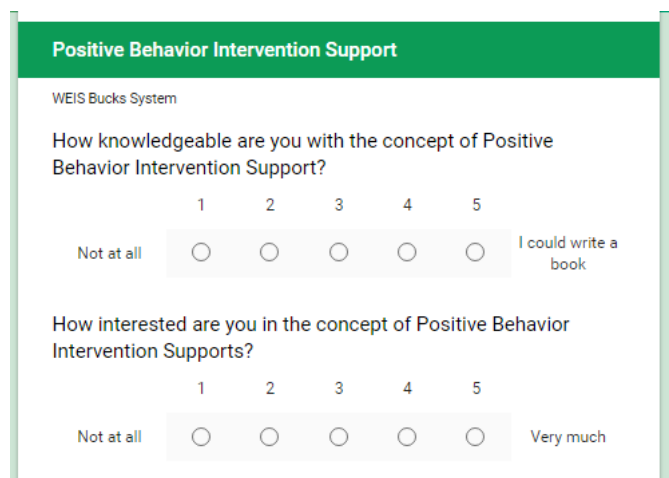
- games
- weather
- social network
- maps/navigation/search
- music
- news
- entertainment
- banking/finance
- videos/movies
- shopping/retail
- sports
- productivity
- None of the above
- Other:

How comfortable are you with a smartphone?

1 2 3 4 5  
 Not at all      Very much

How comfortable are you with navigating smartphone applications (apps)?

1 2 3 4 5  
 Not at all      Very much



## Appendix D

## Instrumentation: Informed Consent: Faculty

**Usability of a Positive Behavior Reward App**

Dear Participant:

My name is Ashley Callahan and I am the Student Activities Coordinator at Waimanalo Elementary and Intermediate School. I am also a Master's student in the Learning Design and Technology department at the University of Hawai'i at Mānoa. I would like for you to participate in an usability research project on a smartphone application I designed to reward students for their positive behavior at school. For some background, the school currently has a program in place that gives students paper money when they are caught doing a targeted good behavior on campus. Due to some drawbacks of the current system I have created an app that gives the students digital points instead of physical money.

The study consists of two surveys. One of the surveys will be given before introducing the app. This survey will ask for your knowledge and current use of apps and how you feel about the current reward system. The second survey will be given after you test the app and it will ask for your perceptions of the app you tested. Where I will be recording the screen during the presentation, only I will have access to the data collected and your anonymity will remain intact. All recordings and scripts from our sessions will be secured using a password protected storage program.

At the conclusion of this study, all your information (surveys, screencasts, and scripts) will be averaged into all other participants information. All information from this study will then be used to write a published paper that will not include any identifiable information including name and school.

There is no benefit in taking part in this usability study and participation is voluntary. Your decision whether or not to participate will not affect our working relationship nor services provided at the school. Even if you decide now to participate, you free to end participation at any time. All that is needed to end participation is to either tell me in person or write an email stating you would like to end your participation in this usability study.

Should you have any questions or desire further information, please call me or email me at 259-0460 and ashleya6@hawaii.edu. If contact needs to be made with my faculty advisor at the University you may contact Dr. Catherine P. Fulford at fulford@hawaii.edu. Keep this letter after tearing off the back page and have your student return the signed consent page back to me in class.

Sincerely,  
Ashley Callahan  
Student Activities Coordinator  
Waimanalo Elementary and Intermediate School

**Usability of a Positive Behavior Reward App**

Please indicate whether or not you choose to participate in this project by checking one of the statements below, signing your name and return to Mrs. Ashley Callahan. Sign both copies and keep one for your records.

\_\_\_\_\_ I chose to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App AND allow for audio to be recorded.

\_\_\_\_\_ I chose to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App but do NOT allow for audio to be recorded.

\_\_\_\_\_ I do not chose to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

## Appendix E

Instrumentation: Informed Consent: Student

## Usability of a Positive Behavior Reward App

Dear Parent or Guardian:

My name is Ashley Callahan and I am the Student Activities Coordinator at Waimanalo Elementary and Intermediate School. I am also a Master's student in the Learning Design and Technology department at the University of Hawai'i at Mānoa. I request permission for your child to participate in an usability research project on a smartphone application I designed to reward students for their positive behavior at school. For some background, the school currently has a program in place that gives students paper money when they are caught doing a targeted good behavior on campus. Due to some drawbacks of the current system I have created an app that gives the students digital points instead of physical money.

The study consists of two surveys. One of the surveys will be given before introducing the app. This survey will ask for their grade level and current use of apps and how they feel about the current reward system. The second survey will be given after they test the app ask for their attitudes about the app. The project will be explained in terms that your child can understand, and your child will participate only if he or she is willing to do so. Only I will have access to information on your child.

During the study I will be recording the smartphone screen your student is using. The recording app also takes an audio recording that I will use later to check my notes taken during the session. Only I will have access to both of these recordings and once the study is over they will be deleted along with the rest of the information given to me by your student.

There is no benefit in taking part in this usability study and participation is voluntary. Your decision whether or not to allow your child to participate will not affect the services normally provided to your child. Even if you give your permission for your child to participate, your child is free to refuse to participate. If your child agrees to participate, he or she is free to end participation at any time.

Should you have any questions or desire further information, please call me or email me at 259-0460 and ashleya6@hawaii.edu. If contact needs to be made with my faculty advisor at the University you may contact Dr. Catherine P. Fulford at fulford@hawaii.edu. Keep this letter after tearing off the back page and have your student return the signed consent page back to me in class.

Sincerely,  
Ashley Callahan  
Student Activities Coordinator  
Waimanalo Elementary and Intermediate School

## Usability of a Positive Behavior Reward App

Please indicate whether or not you wish to allow your child to participate in this project by checking one of the statements below, signing your name and having your student return to Mrs. Callahan. Sign both copies and keep one for your records.

\_\_\_\_\_ I grant permission for my child to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App AND have their audio recorded.

\_\_\_\_\_ I grant permission for my child to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App but do NOT want to have their audio recorded.

\_\_\_\_\_ I do not grant permission for my child to participate in Mrs. Ashley Callahan's study on a Positive Behavior Reward App.

\_\_\_\_\_  
Signature of Parent/Guardian

\_\_\_\_\_  
Printed Parent/Guardian Name

\_\_\_\_\_  
Printed Name of Child

\_\_\_\_\_  
Date

## Appendix F

## Instrumentation: Informed Assent

**WEIS BUCK SMARTPHONE APP****MINOR ASSENT FORM****WHAT WE'RE DOING.**

This research study is about using a smartphone application to award and use WEIS Bucks as points instead of physical paper money. We want to find out if an app works better than what we have now.

**WHAT COULD HAPPEN?**

Nothing bad could happen to you if you decide to participate in our study.

**WHAT'S IN IT FOR YOU?**

Unfortunately, there is nothing in it for you, other than to be able to learn about this new software and to help us figure out if technology can help students like you.

**YOUR INFORMATION WILL BE KEPT SAFE.**

Any information we get from you will be kept safe. That means that no one else will know what you personally typed. They will only know that a student typed it.

**PARTICIPATION: YOU HAVE THE CHOICE.**

Whether or not you choose to participate in this study is up to you. You can say, "No," at any time, even if you have already started working with us. We promise not to hold it against you in any way. You will still do the writing activities for your teacher, but we will not use your work in the study.

**WHAT IF YOU HAVE QUESTIONS OR PROBLEMS?**

Mrs. Callahan under the direction of Dr. Cathrine P. Fulford at University of Hawai'i at Manoa is doing this study. Your parents can reach Dr. Cathrine P. Fulford at (808) 956-3906 if you or they have questions or want to talk about any problems. Also, The University of Hawai'i at Manoa has a special office that deals with people like you, who participate in research studies. Your parents can call that office at 808-956-5366 if you have questions that we can't answer. The University of Hawai'i at Manoa has looked at the way we are doing this study and have given us permission to do it.

**ASSENT**

I have read this form and had my questions answered. I agree to participate in this study.

---

 Print name

---

 Signature

---

 Date of Signature

Appendix G  
Instrumentation: Usability Protocol: Faculty

**Usability Protocol**  
**Evaluating Usability of a Positive Behavior Reward App for Faculty and Students at a Local Elementary and Intermediate School**

*Modified from Usability Script- Rocket Surgery Made Easy © 2010 Steve Krug*

**Technology Set-Up Checklist (Facilitator)**

1. Set up smartphone with screen recording application, AZ Screenrecorder
2. Make sure phone is charged
3. Make sure phone has internet connectivity
4. Prepare screencasting software and do a brief test to ensure
  - a. Video of screen is captured
  - b. Audio is captured

After smartphone is set up:

1. Load your application in whatever presentation software you choose to use.
2. Start the screencasting software

**Facilitator Script**

Hi, [insert participant's name]. My name is Mrs. (Ashley) Callahan, and I'm going to be walking you through this session today.

Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

I'm asking people to take a look at a smartphone app used to award points to students when they act appropriately. I would like to see what you think of it and how you think you would complete a few tasks with an interface like this. The session should take about 15 minutes.

The first thing I want to make clear right away is that I'm testing the *WEIS Buck App*, not you. You can't do anything wrong here. In fact, this is probably the one place today where you don't have to worry about making mistakes.

As you complete the tasks, I'm going to ask you as much as possible to try to *think out loud*: to say what you're looking at, what you're trying to do, and what you're thinking. This will be a big help to us.

Also, please don't worry that you're going to hurt our feelings. I'm doing this to improve the site, so I need to hear your honest reactions.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, since I'm interested in how people do when they don't have someone who can help. But if you still have any questions when we're done I'll try to answer them then.

And if you need to take a break at any point, just let me know. Do you have any questions so far?

- **Ask participant a few preliminary questions:**

OK. Before we look at the app, I'd like to ask you just a few quick questions.

1. What is your occupation? What do you do all day?

2. Now, roughly how many hours a week altogether—just a ballpark estimate— would you say you spend using a smartphone, at work and at home?
3. What experience do you have with behavior tracking smartphone applications? If so, what applications have you previously used?

OK, great. We're done with the questions, and we can start testing out the site.

- ***Have participants do a narrative of the website's' overall appearance for one or two minutes, at most:***

I'm going to ask you to look at this app's homepage, and tell me what you make of it: what strikes you about it, what you can do here, and what it's for. Just look around and do a little narrative. You can scroll around if you need to.

- ***Ask participant to complete a few specific tasks (be sure to give the participant a handout of the scenarios):***

Thanks for doing that. You did a great job. Now I'm going to ask you to try doing some specific tasks. I'm going to read each one out loud. You should have received a copy of these before this study. Again, as much as possible, it will help us if you can try to think out loud as you go along. ***Allow the user to proceed from one task to the next until you don't feel like it's producing any value or the user becomes very frustrated. Repeat for each task or until time runs out.***

### **Scenarios ("tasks") for Usability Protocol**

#### **Scenario 1**

You are a middle school teacher and caught a student cleaning up rubbish, without being asked to do so, at recess. You would like to reward that student with 1 WEIS Buck. How would you go about completing this task?

Award 1 WEIS Buck

Explain how you navigated this process.

Explain what you are seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what you should do next.

#### **Scenario 2**

You are still a middle school teacher interesting in knowing more information about the WEIS Buck system here at the school. How would you go about completing this task?

Information

Explain how you got to the correct page.

Explain what you are seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what other modifications could be made.

#### **Scenario 3**

You are curious as to what the next WEIS Buck event is and when it will be held. How would you go about completing this task?

Events Calendar

Explain how you got to the correct page.

Explain what you were seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what other reward/penalties could be given at this time.

Thanks, that was very helpful.

I am done with the main questions, but I have a few more general questions to ask you.

**Note:** *If you ask yes/no, true-false, and ranking follow-up questions, be sure to follow up with questions about WHY. This is because design teams will ask, "Well, what was the cause? What exactly were they thinking when they answered this? How should the product design respond to this? Give me something I can use!"*

1. On a scale of 1 to 5, with 1 representing very difficult and 5 representing very easy, how would you rate your experience during today's testing?
2. After participating in this study, would you recommend this app instead of the current physical dollar system? Why?

That's the last question, Do you have any questions for me, now that I'm done?

I want to thank you for your time and willingness to be a participant in this study.

- **Stop the screencasting software**

#### **After the Session:**

1. Save screencast to your local computer
2. Quickly scrub through the video to ensure the integrity of the audio and video
3. After completing both sessions, upload the video to Google Drive
4. Set the sharing options for the videos to "anyone with the link"
5. Share the videos with your team



Appendix H  
Instrumentation: Usability Protocol: Student

**Usability Protocol**  
**Evaluating Usability of a Positive Behavior Reward App for Faculty and Students at a Local Elementary and Intermediate School**

*Modified from Usability Script- Rocket Surgery Made Easy © 2010 Steve Krug*

**Technology Set-Up Checklist (Facilitator)**

1. Set up smartphone with screen recording application, AZ Screenrecorder
2. Make sure phone is charged
3. Make sure phone has internet connectivity
4. Prepare screencasting software and do a brief test to ensure
  - a. Video of screen is captured
  - b. Audio is captured

After smartphone is set up:

1. Load your application in whatever presentation software you choose to use.
2. Start the screencasting software

**Facilitator Script**

Hi, [insert participant's name]. My name is Mrs. (Ashley) Callahan, and I'm going to be walking you through this session today.

Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

I'm asking people to take a look at a smartphone app used to award points to students when they act appropriately. I would like to see what you think of it and how you think you would complete a few tasks with an interface like this. The session should take about 15 minutes.

The first thing I want to make clear right away is that I'm testing the *WEIS Buck App*, not you. You can't do anything wrong here. In fact, this is probably the one place today where you don't have to worry about making mistakes.

As you complete the tasks, I'm going to ask you as much as possible to try to *think out loud*: to say what you're looking at, what you're trying to do, and what you're thinking. This will be a big help to us.

Also, please don't worry that you're going to hurt our feelings. I'm doing this to improve the site, so I need to hear your honest reactions.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, since I'm interested in how people do when they don't have someone who can help. But if you still have any questions when we're done I'll try to answer them then.

And if you need to take a break at any point, just let me know. Do you have any questions so far?

- **Ask participant a few preliminary questions:**

OK. Before we look at the app, I'd like to ask you just a few quick questions.

1. What grade are you in?

2. Now, roughly how many hours a week altogether—just a ballpark estimate— would you say you spend using a smartphone?

3. What experience do you have with smartphone apps for school? If so, what apps have you previously used?

OK, great. We're done with the questions, and we can start testing out the site.

- ***Have participants do a narrative of the website's' overall appearance for one or two minutes, at most:***

I'm going to ask you to look at this app's homepage, and tell me what you make of it: what strikes you about it, what you can do here, and what it's for. Just look around and do a little narrative. You can scroll around if you need to.

- ***Ask participant to complete a few specific tasks (be sure to give the participant a handout of the scenarios):***

Thanks for doing that. You did a great job. Now I'm going to ask you to try doing some specific tasks. I'm going to read each one out loud. You should have received a copy of these before this study. Again, as much as possible, it will help us if you can try to think out loud as you go along.

***Allow the user to proceed from one task to the next until you don't feel like it's producing any value or the user becomes very frustrated. Repeat for each task or until time runs out.***

### **Scenarios ("tasks") for Usability Protocol**

#### **Scenario 1**

You are a middle school student and caught a student cleaning up rubbish, without being asked to do so, at recess. A teacher rewarded you telling you they gave you a WEIS Buck and you would like to see how many points you have in your bank. How would you go about completing this task?

Check Amount of WEIS Bucks

Explain how you navigated this process.

Explain what you are seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what you should do next.

#### **Scenario 2**

You are still a middle school teacher student and now that you have points in your account you would like to purchase something at the store? How would you go about completing this task?

School Store

Explain how you got to the correct page.

Explain what you are seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what other modifications could be made.

**Scenario 3**

You are curious as to what the next WEIS Buck event is and when it will be held. How would you go about completing this task?

**Event Calendar**

Explain how you got to the correct page.

Explain what you were seeing during this process.

Explain what you are thinking about as you are going through this process.

Explain what other reward/penalties could be given at this time.

Thanks, that was very helpful.

I am done with the main questions, but I have a few more general questions to ask you.

*Note: If you ask yes/no, true-false, and ranking follow-up questions, be sure to follow up with questions about WHY. This is because design teams will ask, "Well, what was the cause? What exactly were they thinking when they answered this? How should the product design respond to this? Give me something I can use!"*

1. On a scale of 1 to 5, with 1 representing very difficult and 5 representing very easy, how would you rate your experience during today's testing?
2. After participating in this study, would you recommend this app instead of the current physical dollar system? Why?

That's the last question, Do you have any questions for me, now that I'm done?

I want to thank you for your time and willingness to be a participant in this study.

- ***Stop the screencasting software***

**After the Session:**

1. Save screencast to your local computer
2. Quickly scrub through the video to ensure the integrity of the audio and video
3. After completing both sessions, upload the video to Google Drive
4. Set the sharing options for the videos to "anyone with the link"
5. Share the videos with your team



**7. My interaction with the WEIS Buck app was be clear and understandable**  
*Mark only one oval.*

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

**8. I found the WEIS Buck app easy to use**  
*Mark only one oval.*

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

**9. I would want to use the WEIS Buck app instead of the paper money we use now**  
*Mark only one oval.*

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

**10. List the most negative aspects of the WEIS Buck app.**

.....

.....

.....

**11. List the most positive aspects of the WEIS Buck app.**

.....

.....

.....



**7. I would want to use the WEIS Buck app instead of the paper money we use now**  
*Mark only one oval.*

	1	2	3	4	5	
strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	strongly agree

**8. List the most negative aspects of the WEIS Buck app.**

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**9. List the most positive aspects of the WEIS Buck app.**

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